



KOMO®

Product certificate with attestation

K4345-10



Issued 2025-06-01 Replaces K4345/09

Valid until Indefinite Dated 2021-07-01

Page 1 of 15

Massief NT external wall cladding

Plastica Plaat B.V.

STATEMENT BY KIWA

This product certificate with attestation is based on Guideline 4101-01 "façade cladding, general requirements" dated January 1st 2024 including Guideline 4101-04 "façade cladding, additional requirements for decorative high-pressure laminate (HPL)", issued according to the Kiwa-Regulation for Certification.

The quality system and the product characteristics are checked periodically. The performance of the product in façades as façade cladding is assessed is checked in relation to the Structures (Living Environment) Decree and the principles of the check are re-checked periodically. Based on this, **Kiwa declares that** there is legitimate confidence that:

- Upon delivery, the products meet the requirements:
 - Of the technical specifications laid down in this product certificate with attestation;
 - The product requirements laid down in the Guideling, provided the product/packaging are accompanied by the KOMO® quality mark in a manner set out in this product certificate with attestation.
- The façades composed with this product, perform as specified in this product certificate with attestation.
- With due observance of the above façades comply with the requirements of the Structures (Living Environment) Decree specified in this product certificate with attestation, provided:
 - The technical specification and the conditions of application laid down in this product certificate with attestation are fulfilled;
 - The manufacture of the façades takes place in accordance with the regulations and/or processing methods laid down in this product certificate with attestation.

The essential characteristics, as laid down in the applicable harmonised European product standard, and the corresponding checks on the quality system of these characteristics do not form part of this declaration.

Ron Scheepers
Kiwa

This product certificate with attestation is also included on the KOMO foundation websites: www.komo.nl and www.komo-online.nl.

Users of this product certificate with attestation is advised to check whether it is still valid. For this purpose consult the website of Kiwa: www.kiwa.nl.

Kiwa Nederland B.V.
Sir Winston Churchilllaan 273
Postbus 70
2280 AB RIJSWIJK
The Netherlands
Tel. +31 88 998 44 00
Fax +31 88 998 44 20
info@kiwa.nl
www.kiwa.nl

Representative Netherlands
Plastica Plaat B.V.
Industrieweg 92
Postbus 180
5140 AD Waalwijk
T (+31) 0416-672400
F (+31) 0416-672490
E info@plastica.nl
I www.plastica.nl

Certificate holder / Production location
FunderMax GmbH
Industriezentrum NÖ-Süd
2355 Wiener Neudorf
Austria
www.fundermax.at



Structures (living environment) decree

Assessed is:

- Quality system
- Product
- Single performance in the application

Periodic control

Massief NT external wall cladding

CONTENT

1.	TECHNICAL SPECIFICATION	3
1.1	SUBJECT	3
1.1.1	Design and composition	3
1.1.2	Dimensions and size tolerances	3
1.1.3	Colour and surface structure	3
2.	QUALITY MARK AND INDICATIONS PLACED ON THE PRODUCTS / PACKAGING	3
3.	PERFORMANCE IN THE APPLICATION	4
3.1	PERFORMANCE BASED ON THE STRUCTURES (LIVING ENVIRONMENT) DECREE	4
3.1.1	Safety	5
3.1.1.1	Structural safety, SD paragraph 3.2.1, 4.2.1 and chapter 5	5
3.1.1.2	Limiting the development of fire and smoke, SD paragraph 3.2.7, 4.2.7 and chapter 5	5
3.1.2	Health	5
3.1.2.1	Resistance to moisture, SD paragraph 3.3.1, 4.3.5 and chapter 5	5
3.1.2.2	Protection against rats and mice, SD paragraph 3.3.5, 4.3.9 and chapter 5	6
3.1.3	Sustainability	6
3.1.3.1	Environmental performance Bbl section 4.4.2	6
3.1.4	Usability	6
3.1.4.1	Outdoor storage, Bbl paragraph 4.5 and H5	6
3.2	UNDETERMINED PERFORMANCE BASED ON THE DECISION ON CONSTRUCTION WORKS AND THE LIVING ENVIRONMENT	6
4.	PRODUCT CHARACTERISTICS	6
5.	PROCESSING INSTRUCTIONS	7
5.1	General	7
5.1.1	Transport	7
5.1.2	Storage	7
5.1.3	Processing	7
5.2	ASSEMBLY	7
5.2.1	Support structure	7
5.2.2	Instructions for joints	8
5.2.3	Instructions for ventilation	9
5.2.4	Instructions for the application of thermal insulation	9
5.2.5	Instructions on detailing	9
6.	APPLICATION AND USAGE CONDITIONS	9
6.1	SYSTEM SPECIFICATION	9
6.1.1	Substructure, general	9
6.1.2	Substructure, timber	9
6.1.2.1	General	9
6.1.2.2	Fasteners timber support structures	10
6.1.3	Substructure, aluminium	10
6.1.3.1	General	10
6.1.3.2	Fasteners aluminium support structures	10
6.1.4	Thermal insulation	10
6.1.5	Fastening methods	10
6.1.5.1	Continuous visible fastening system	10
6.1.5.2	Blind fastening system	10
6.1.6	Fastening materials	11
6.1.7	Accessoires	11
7.	MAINTENANCE INSTRUCTIONS	11
8.	TIPS FOR THE USER	11
9.	DOCUMENT LIST	12
10.	BASIC DETAILS	13
10.1	FASTENING WITH SCREWS	13
10.2	BLIND FASTENING	14
10.3	WEATHERBOARDING	15

Massief NT external wall cladding

1. TECHNICAL SPECIFICATION

1.1 SUBJECT

This product certificate with attestation relates to:

- Massief NT for decorative high-pressure laminate (HPL).
- The product characteristics of Massief NT that can be used as façade cladding.
- The performance of the system, composed with the product for use as façade cladding.

1.1.1 Design and composition

Massief NT is a material composed from thermosetting resins and wood fibre that has been compressed under high pressure and at a high temperature into a homogeneous external cladding panel. The panel has a core of impregnated cellulose strips and a sealed acrylate top layer for maximum durability.

1.1.2 Dimensions and size tolerances

The nominal dimensions and the accompanying tolerances are discerned in table 1. Different dimensions are available on request. The maximum permissible size deviations for made-to-measure panels can be agreed between the parties should they arise.

Table 1: Nominal panel dimensions in mm

	Length ¹⁾ [mm]	Width ¹⁾ [mm]	Thickness [mm]		
Dimensions	2800	1300	6.0	8.0	10.0
	2800	1854	6.0	8.0	10.0
	3670	1630	6.0	8.0	10.0
	4100	1300	6.0	8.0	10.0
	4100	1854	6.0	8.0	10.0

1.1.3 Colour and surface structure

Surface : Slightly structured

Colours : Massief NT is standardly available in several colours.

A colour chart is available from Plastica Plaat B.V.

2. QUALITY MARK AND INDICATIONS PLACED ON THE PRODUCTS / PACKAGING

On the documents related to the certified products the indication KOMO® or the KOMO® quality mark followed by the certificate number shall be given.

The product and/or packaging are marked with:

- The designation KOMO® or the KOMO® mark followed by the certificate number **K4345**. The designation of the mark is as follows:



- Name of certificate holder,
- Brand name,
- Production code or production date.

Massief NT external wall cladding

3. PERFORMANCE IN THE APPLICATION
3.1 PERFORMANCE BASED ON THE STRUCTURES (LIVING ENVIRONMENT) DECREE

Structures (Living Environment) Decree – EXISTING CONSTRUCTION						
Paragraph of Structures (Living Environment) Decree	Article	Paragraphs	Description	Determination method	Limit value	Performance
3.2.1	3.8 3.9 3.10	1, 2 1	Structural safety	NEN 8700, NEN-EN 1990	No collapse	To be determined per project whereby the maximum span distances must be observed. Screw holding values ≥ 2000 N. Connections and fastenings must be made in accordance with § 5.2.1.
3.2.7	3.30 3.32 3.34 3.35	1, 2 1 1, 2	Limiting the development of fire and smoke	NEN 6065, NEN 6066	Fire class ≥ 4 or ≥ 2 (protected route).	Massief NT meets at least fire class B-s2, d0 on both the visible and rear sides.
3.3.1 ^{f)}	3.63 3.64	1, 2 1, 2	Moisture resistance	NEN 2778	Watertight	The panels are watertight, the seams water-resistant. The water-tightness must be ensured by a water-resistant substructure.
3.3.5	3.79 3.80	1, 2 1, 2	Protection against rats and mice		No openings > 0,01 m	The plates and seams do not contain any openings wider than 0.01 m. Additional provisions are made at the location of unclosable openings wider than 0.01 m from seams.

f) = optional

Structures (Living Environment) Decree – NEW CONSTRUCTION						
Paragraph of Structures (Living Environment) Decree	Article	Paragraphs	Description	Determination method	Limit value	Performance
4.2.1	4.11 4.12 4.14 4.15	1, 2 1, 2 1, 2	Structural safety	NEN-EN 1990 NEN-EN 1991-1-1 (weight) NEN-EN 1991-1-4 (wind) NEN-EN 1991-1-5 (thermal) NEN-EN 1991-1-7 (impact) NEN-EN 1993-1-1 (steel) NEN-EN 1995-1-1 (timber) NEN-EN 1999-1-1 (aluminium)	No collapse	To be determined per project whereby the maximum span distances must be observed. Screw holding values ≥ 2000 N. Connections and fastenings must be made in accordance with § 5.2.1.
4.2.7	4.42 4.44 4.46 4.48	1, 2 1, 2, 3 1, 2, 3	Limiting the development of fire and smoke	NEN-EN 13501-1	Fire class $\geq D$	Massief NT meets at least fire class B-s2, d0 on both the visible and rear sides.
4.3.5 ^{f)}	4.117 4.118 4.119	1, 2 1, 2, 4	Moisture resistance	NEN 2778	Watertight	The panels are watertight, the seams water-resistant. The water-tightness must be ensured by a water-resistant substructure.
4.3.9	4.143 4.144 4.145	1, 2 1, 2 1	Protection against rats and mice		No openings > 0,01 m	The plates and seams do not contain any openings wider than 0.01 m. Additional provisions are made at the location of unclosable openings wider than 0.01 m from seams.
4.4.2 ^{f)}	4.158 4.159	1, 2 1 to 4	Environmental performance	Method for determining the environmental performance of buildings and civil engineering works	Environmental performance ≤ 1	Not determined.
4.5.5 ^{f)}	4.171 4.173	1, 2	Outdoor storage	NEN 2778	Rain-resistant	The panels are watertight, the seams water-resistant. The water-tightness must be ensured by a water-resistant substructure.

f) = Optional

Massief NT external wall cladding

Structures (Living Environment) Decree – RENOVATION, RELOCATION OF BUILDING, CHANGE OF USE						
Paragraph of Structures (Living Environment) Decree	Article	Paragraphs	Description	Determination method	Limit value	Performance
	5.4	1 to 4	Renovation	See chapter 4, clause 4.4.2 excepted	Meets legally obtained level	
	5.6	1	Relocation	See chapter 3	Meets requirements chapter 3	
	5.7	1 to 3	Change of use	See chapter 3	Meets requirements chapter 3	
	5.9	1, 2	Structural safety	NEN 8700	No collapse	To be determined per project whereby the maximum span distances must be observed. Screw holding values ≥ 2000 N. Connections and fastenings must be made in accordance with § 5.2.1.
	5.12		Limiting the development of fire and smoke	NEN-EN 13501-1	Fire class B	Massief NT meets at least fire class B-s2, d0 on both the visible and rear sides.

3.1.1 Safety

3.1.1.1 Structural safety, SD paragraph 3.2.1, 4.2.1 and chapter 5

The strength and stability of the Massief NT and of the certified separating structure are sufficient to withstand the occurring fundamental load combinations according to NEN-EN 1990 without collapsing during a reference period of 50 years.

Tables 3 and 4 show the maximum real wind load for different fixing distances and fixing means for Massief NT. These tables are based on Massief NT with strength properties, dimensional stability and durability in accordance with the values from table 2 of this KOMO quality declaration.

Application conditions

- Static calculations of the facade cladding system must be carried out in accordance with NEN-EN 1990 in the case of a composite construction, NEN-EN 1999-1-1 if the construction is made of aluminium and NEN-EN 1995-1-1 if the construction is made of wood, taking into account the following points:
 - The strength calculations of the facade panels are carried out by or on behalf of the manufacturer, or in accordance with his written instructions.
 - The loads that apply to the fire load case do not have to be taken into account.
- Connections, fixings and anchors must be carried out in accordance with a method as described in section 5.2.2.
- The fixing distance must be determined on a case-by-case basis in accordance with the chosen fixing system (see the instructions in section 5.2.2).
- For hanging heavy objects and when used in places subject to extra mechanical loads, additional provisions must be made in consultation with the manufacturer.

3.1.1.2 Limiting the development of fire and smoke, SD paragraph 3.2.7, 4.2.7 and chapter 5

The fire class of Massief NT as specified in this product certificate with attestation complies on both sides with at least class B-s2, d0 determined in accordance with NEN-EN 13501-1.

Explanations

- Instead of fire class 4, determined according to NEN 6065, fire class D can be used, determined according to NEN-EN 13501-1.
- Instead of smoke density ≤ 10 m-1 or 5.4 m-1, determined according to NEN 6066, smoke class s2 can be used, determined according to NEN-EN 13501-1.
- A façade of a building must consist, on the outside up to a height of 13 m, of building material combinations which at least comply with class D of the flame spread index, on the understanding that the side facing the escape route must belong to at least class C.
- The outside of a façade of residential buildings of more than two stories must consist, up to 2.5 m above the adjoining land, of building material combinations which at least comply with class B of the flame spread index.
- The outside of a building façade which is not intended for residential purposes must consist, as from a height of 13 m above the adjoining land, of building material combinations which at least comply with class B of the flame spread index.
- Material (combinations) of parapet lower than 1.5 m from the floor area must belong at least to class C of the flame spread index.
- If the wall cladding is in contact with the indoor air (for example, an atrium or screened off gallery), smoke class s2 is required.
- Wherever requirements are imposed in terms of incombustibility, such as near hearths and flues, uncoated and/or coated profiled fibre cement sheets may not be used as such.
- The fire safety of (wooden) base constructions and any insulation material must be assessed on a case-by-case basis.

3.1.2 Health

3.1.2.1 Resistance to moisture, SD paragraph 3.3.1, 4.3.5 and chapter 5

Massief NT is watertight. The joint and connection details shown in § 5.2.2 are water-resistant. It must be taken into account that rain (and drifting snow) can penetrate into the cavity behind the facade panels at the location of panel joints, frame connections and occasionally via the ventilation facilities. The extent to which water enters the cavity depends largely on the chosen detailing. The watertightness must be determined by the finish of the inner leaf. For wooden or sand-lime brick inner cavity leaves, a WDO membrane must be used in accordance with NPR 2652 and frame connections must be watertight. For a concrete inner leaf, any seams in the inner leaf and the frame connections must be made watertight. On the inside of facade structures that have been constructed in accordance with the processing instructions, no inadmissible moisture accumulation occurs as a result of condensation.

Massief NT external wall cladding

Application conditions

- The materials used must comply with the system specification laid down in this quality declaration.
- Behind the facade panels, there must be a ventilated air cavity of at least 20 mm wide (see also section 5.2.3).
- The temperature factor of the inner surface of the external partition structure, determined in accordance with NEN 2778 or NPR 2878, is at least 0.65 for homes and residential buildings and at least 0.50 for buildings not intended for residential use.
- The design value of the thermal conductivity coefficient (λ) of the materials used must be determined in accordance with NEN 1068.

3.1.2.2 Protection against rats and mice, SD paragraph 3.3.5, 4.3.9 and chapter 5

Massief NT and the joint connections according to § 5.2.2 have no openings wider than 0.01 m.

Application conditions

When using Abet MEG façade cladding panels, grilles with openings no wider than 0.01 m must be used at seams/openings wider than 0.01 m.

3.1.3 Sustainability

3.1.3.1 Environmental performance Bbl section 4.4.2

The contribution of Massief NT to the environmental performance has not been assessed.

3.1.4 Usability

3.1.4.1 Outdoor storage, Bbl paragraph 4.5 and H5

Massief NT itself is watertight. The joint and connection details, shown in § 5.2.2 are water-resistant.

3.2 UNDETERMINED PERFORMANCE BASED ON THE DECISION ON CONSTRUCTION WORKS AND THE LIVING ENVIRONMENT

In addition to the performance requirements mentioned in § 3.1, several performance requirements apply to facades. However, the performance depends on the structure and design of the entire facade construction on which the facade cladding is applied. This includes the performance with regard to:

- Section 3.2.8 / 4.2.8: Limiting the spread of fire,
- Section 3.2.9 / 4.2.9: Further limiting the spread of fire and limiting the spread of smoke,
- Section 4.3.1: Protection against external noise,
- Section 4.4.1: Energy efficiency,

Whether the total facade construction with the application of Massief NT complies with the stated requirement(s) has not been determined in the context of this attest-with-product certificate and must be determined by the specifier of the product during the design.

4. PRODUCT CHARACTERISTICS

Table 2 lists the product characteristics that form part of this product certificate with attestation. These meet the requirements specified in the table and, if stated, the stated performances.

Table 2: Product characteristics

Characteristic	Determination method	Requirement BRL / Attest	Performance
Thickness – $5,0 \leq t < 8,0$ mm – $8,0 \leq t < 12,0$ mm – $12,0 \leq t < 16,0$ mm	EN 438-2, method 5	$\pm 0,40$ mm $\pm 0,50$ mm $\pm 0,60$ mm	Meets requirements
Length and width	EN 438-2, method 6	+ 10,0 / - 0,0 mm	Meets requirements
Straightness of edges	EN 438-2, method 7	$\leq 1,5$ mm/m ¹	Meets requirements
Squareness	EN 438-2, method 8	$\leq 1,5$ mm/m ¹	Meets requirements
Flatness – $6,0 \leq t < 10,0$ mm – $10,0 \leq t$ mm	EN 438-2, method 9	5,0 mm/m ¹ 3,0 mm/m ¹	Meets requirements
Dimensional stability: – Change dimensions parallel – Change dimensions perpendicular	EN 438-2, method 17	0,30 % 0,60 %	Meets requirements
Resistance to impact by large ball	EN 438-2, method 21	Drop height 1800 mm	Meets requirements
Flexural modulus	EN-ISO 178	≥ 9000 MPa	Meets requirements
Flexural strength	EN-ISO 178	≥ 80 MPa	Meets requirements
Resistance to climatic shock – Flexural strength index, D_s – Flexural modulus Index, D_m	EN 438-2, method 19	$\geq 0,80$ and Δ appearance ≥ 4 $\geq 0,80$ and Δ appearance ≥ 4	Meets requirements

Massief NT external wall cladding

Characteristic	Determination method	Requirement BRL / Attest	Performance
Technical durability: – Increase in density – Classification surface – Classification corners – Density	EN 438-2, method 15 EN-ISO 1183-1	$\leq 5\%$ (EGS/EDS), $\leq 8\%$ (EGF/EDF) ≥ 4 ≥ 3 $\geq 1350 \text{ kg/m}^3$	Meets requirements Meets requirements Meets requirements $\geq 1350 \text{ kg/m}^3$
Resistance to artificial ageing	EN 438-2, method 15 / BRL 4101-04, § 5.1.8 EN-ISO 2813	No blisters or cracks, Gray scale ≥ 3 , Change in gloss $\leq 50\%$	Meets requirements
Resistance to SO ₂	DIN 50018 / ISO 105-A02	$\Delta \text{ colour} \geq 3$	Meets requirements
Resistance to shocks from outside	BRL 4101-1, § 4.4.1	$\geq 0,4 \text{ kNm}$	$\geq 0,4 \text{ kNm}$

For this product NEN- EN 438-7 is applicable. The product characteristics for which no performance is given in the table above the European “Construction Product Regulation” (CPR) applies. Of the relevant product characteristics it is determined that the relevant product characteristic as mentioned comply to the given limit values.

5. PROCESSING INSTRUCTIONS

5.1 General

5.1.1 Transport

Sturdy and flat pallets are to be used during transport of Massief NT. Pallet size must be at least the same as panels. To prevent scratching, panels must be lifted and not slid across underlying ones.

5.1.2 Storage

Massief NT shall be stored in a closed warehouse at ambient temperature and normal humidity, protected from moist and heat.

In case of horizontal storage on pallets the panels must be supported over the full size. Between the pallet and bottom panel and also on the top panel of each stack a protective coating or plate shall be applied.

At the vertical storage the panels shall stand at right angles on the sides and over the full height supported in such a way that on both sides of the panel equal climatic conditions will prevail.

5.1.3 Processing

Massief NT must always be re-sawn before use. The panels can be processed using wood processing tools with hard metal (Widia) cutting edges. A protective or sealing treatment is not required on the new surfaces after processing (sawing, drilling, milling, bevelling, sanding or possible polishing).

Recommendations during machine processing

- The visible side of the panel must be up-side during sawing; however the décor side must be underneath when using a jigsaw that moves upwards.
- The use stationary tools with moving tables is preferable.
- A type T118B saw table should be used.
- Use interleave paper or underlay and make sure that there are no splinters from sawing when re-using.
- The inner angles of rebates for instance should be rounded off to prevent notching. It is recommended that the angles are pre-drilled using a $\varnothing 6 \text{ mm}$ or larger drill.

5.2 ASSEMBLY

5.2.1 Support structure

It is essential that the support structure is properly aligned so that the cladding is flat. The support structure must be detailed in such a way that the utmost limit values or usability limits are not exceeded as a result of changes to the geometry during the reference period.

The detailing must be done in conformity with the current state of technology. Several general details are shown in chapter 10 of this KOMO® quality statement.

Continuous ventilation must be obtained by means of ventilation columns of at least 20 mm wide behind the panels. Ventilation openings must be made both at the top and bottom (see paragraph 5.2.3) when continuous ventilation is required on horizontal framework. The height of the external wall determines the size of the ventilation opening.

The sealing profiles must fit perfectly and be applied at the correct places.

The Plastica Plaat B.V. processing regulations must be complied with at all times when Massief NT is assembled.

The diameters for the fastening holes for Massief NT are shown in table 3.

Table 3: Diameter of screw holes

Type of screw	Hole diameter	
	Dilation point	Fixation point
Plastica Torx screw with coloured head 12 mm	8.0 mm	6.0 mm

The fastening materials must not be tightened too much as the panels will become distorted, see below.

Massief NT external wall cladding

Table 4: Fastening interval

Fastening intervals, horizontally and vertically for:	Panel thickness		
	6 mm	8 mm	10 mm
2 support points (in mm)	470	620	770
3 or more support points (in mm)	600	770	920
Fastening intervals min. 20 mm and max.	60	80	100

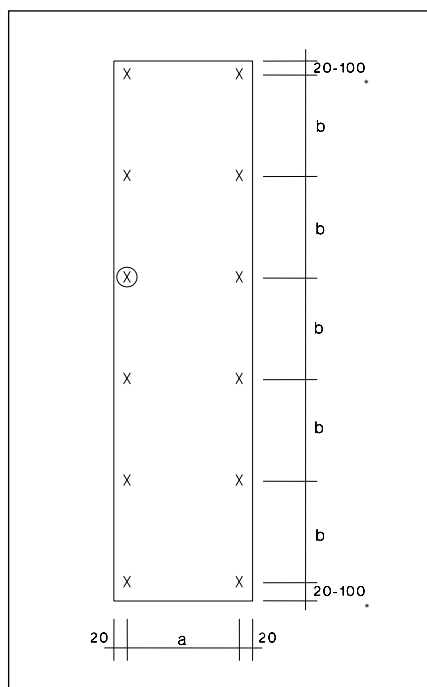


Figure 1: 2 support points per panel

- ⊗ Fixation point
- × Dilatation point

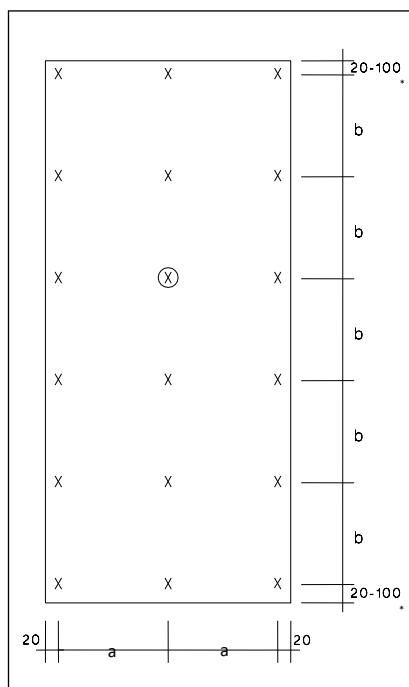


Figure 2: 3 support points per panel

- a = horizontal
- b = vertical

Remarks

- Screw anchoring must be calculated for buildings higher than 20 m¹.
- Screw intervals depend on the flatness requirements as well as on strength.
- Figure 7 is referred to for determining positions in windy areas and the type of environment.

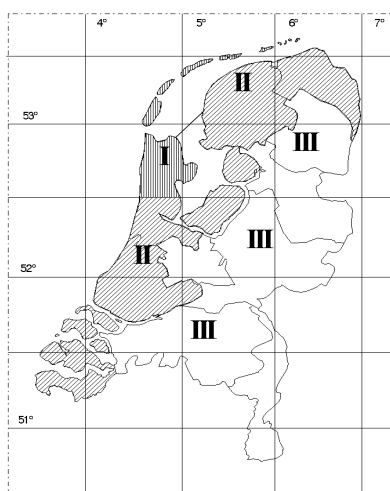


Figure 3: Division of the Netherlands into wind areas in accordance with NEN-EN 1991-1-4+NB.

Area I:

Markermeer, the Wadden Islands and the part of Noord-Holland north of the municipalities of Heemskerk, Uitgeest, Wormerland, Purmerend and Edam-Volendam.

Area II:

Groningen, Friesland, Flevoland, the other Noord-Holland municipalities, Zuid-Holland and Zeeland.

Area III:

Drenthe, Overijssel, Gelderland, Utrecht, Noord-Brabant and Limburg

5.2.2 Instructions for joints

The type of seal chosen is dependent on the manner in which Massief NT is processed (see also details chapter 10).

Massief NT external wall cladding

The horizontal and vertical expansion and shrinking of Massief NT must be taken into account by creating adequate free space around each panel. The width of the joint must be adjusted to the dimensions of the panel and be at least 8 mm. The actual joint thickness required is calculated with a linear expansion of 2.5 mm/m¹.

The gradient of the joints must be chosen so that good drainage is possible. Sealing profiles in aluminium, PVC or joint tape may be used on the horizontal and the vertical joints if necessary.

5.2.3 Instructions for ventilation

A ventilated continuous air cavity must be present behind the cladding panel with a depth of at least 20 mm.

When using horizontal framework that could block the vertical ventilation, ventilation provisions of at least 20 cm² per m¹ must be applied at the top and bottom of the framework.

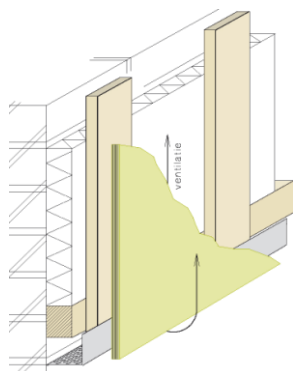


Figure 4

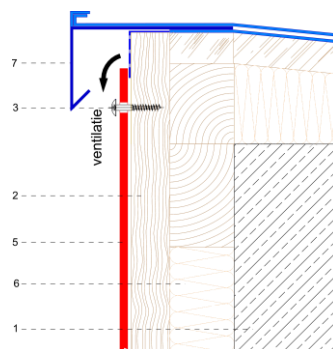


Figure 5

Explanation of figure 5:

1. Roof trim
2. Wooden batten
3. Plastica Torx screw
5. Massief NT
6. Insulation material

5.2.4 Instructions for the application of thermal insulation

Processing must be carried out modern lines or in accordance with the instructions in a valid quality declaration issued by an institute recognised by the Accreditation Council. The type of insulation and its thickness must be adjusted to the requirements in the Structures (Living Environment) Decree.

5.2.5 Instructions on detailing

- The use of small shims must be avoided.
- Special provisions must be applied where mechanical influences can be expected (for example local application of thicker panels or the use of special profiles for sun screens, ladders etc.).

6. APPLICATION AND USAGE CONDITIONS

6.1 SYSTEM SPECIFICATION

6.1.1 Substructure, general

The detailing must be executed in accordance with modern lines. General details are shown in chapter 10 of this quality statement.

The substructure of the façade cladding system should be sufficiently durable, strong and stiff and is to be connected to the building structure in such a way, that the stability of the cladding system is ensured and the loads acting thereon can be transferred to the building structure.

Static calculations for the determination of the dimensioning and fixings of the panel and the sub-structure, shall be executed in accordance with EN 1991, based on the notional value of the:

- dead weight of the panels;
- wind load;
- loads due to differences in temperature;
- loads due to imposed deformations;
- shock loads.

In the determination of the deflection the wind load may be multiplied by 0.7.

Deflection of the panels may not exceed 1/200 x span / mounting distance.

Application conditions

- The distance between the fasteners and the edges of the panel shall be between 20 mm and 100 mm (depending on the panel thickness).
- The wooden structures may not be exposed to temperatures higher than 60 °C.
- Condition for temperature differences: The panels must be able to freely expand in length and width; in this respect there must be free joint width of at least 2.5 mm/m¹ and a minimum of 8 mm along the panel edges
- Condition for impact load on adjoining floor: NEN-EN 1991-1-1+NB.A.
- Condition for impact load height difference: NEN-EN 1991-1-1+NB.A.

6.1.2 Substructure, timber

6.1.2.1 General

The timber support structure should be detailed in a way, that no ultimate limit state and serviceability limit state is exceeded during the reference period as a result of changes in the geometry. Constructions have to be made of rectangular timber (not plywood) which at least meets the following specifications:

- The timber for the support structure shall have a minimum density of 400 kg/m³.
- In the determination of the dimensions of the timber cross-section(s), the presence of a necessary ventilation column of 20 mm deep and thickness of the insulation layer, if any, must be taken into account.

Massief NT external wall cladding

- The timber shall be classified under durability class 1 or 2, according to NEN-EN 350-1: 1994 (Durability of timber and timber based products – durability of solid timber – Part 1). The required durability can be obtained by thermal or chemical modification of the timber up till the core of the timber. Any timber preservation methods and / or fire retardant treatments must meet the requirements as stated in BRL 0601 (Timber preservation), 0605 (Modified timber) and BRL 0602 (Fire retardant treatment of wood and wood products using the vacuum and pressure method).
- The modified timber may not cause any damage to other parts of the supporting structure. With application of timber, modified according to the vacuum/pressure method, additional measures shall be taken to avoid water from entering the core of the timber.

Remarks

Processing of modified timber may cause a reduction in durability.

Especially with thermally modified wood a reduced pull-out resistance of the screws must be taken into account. In that case it therefore may be necessary to apply thicker members.

- The timber can be classified in a strength class in accordance with NEN-EN 338.
- The moisture content of the timber shall not exceed 18 %, determined according to NEN 5461. To prevent rotting of timber, necessary measures must be taken to prevent a permanent moisture load.
- The timber may not have any active degradation caused by larvae, insects and/or fungi.
- Soft wood shall at least satisfy quality class C in accordance with NEN 5466.

6.1.2.2 Fasteners timber support structures

The timber support structure must be assembled with fixings that at least meet the requirements of the permissible deviations and basic requirements for class I according to NEN-EN 14592. The fasteners for timber substructures must be made in stainless steel, type 1.4401 (AISI 316 = A4). The fasteners for aluminium substructures must be made in stainless steel, type 1.4301 (AISI 304 = A2).

6.1.3 Substructure, aluminium

6.1.3.1 General

The aluminium support structure should be detailed in a way, that no ultimate limit state and serviceability limit state is exceeded during the reference period as a result of changes in the geometry.

A substructure consists of aluminium wall supports on which vertical mullions are mounted. On this substructure a visible fixing with rivets possible.

Furthermore the panels can be attached with blind adjustable fastening profiles on horizontal aluminium mullions. The fastening profiles are fixed with the aid of inserts to the panels.

Remark

The strength and stiffness of the aluminium mounting structure has to be demonstrated mathematically and / or by dynamic wind resistance test.

6.1.3.2 Fasteners aluminium support structures

The manufacturer must determine the number of anchoring and fixing points, sizing and order of assembly. The fixings shall be calculated and / or tested for wind forces (pull). Thermal length changes must be taken into account sufficiently.

The panels should be fixed free of tension as much as possible. Fixing with rivets is preferred.

6.1.4 Thermal insulation

In case requirements are set for thermal insulation of the total construction, thermal insulation shall be applied behind the panels. Insulation in the shape of panels or blankets, whether or not featuring a coating, shall be processed in accordance with the manufacturers instructions or valid quality declaration granted by an Institute accredited by the Board of Accreditation (RVA). The type of insulation and thickness shall be tuned to the requirements by the Dutch Structures (Living Environment) Decree.

Application conditions

- The insulation shall be sufficiently watertight. It is advised to use a mineral wool with a waterproof coating. When using open joints higher demands shall be set on the water tightness of the insulation. With mineral wool a heavier coating shall be applied with a prolonged resistance to UV radiation.
- In case battens are used, a WBO-membrane can be applied. In this case the insulation does not need a coating unless required by the open time of the insulation.
- The thermal resistance (Rc) of the total construction has to be determined in accordance with NEN 1068.
- In case insufficiently known, conductivity values of building materials used, shall be determined in accordance with NEN-EN 12664.

6.1.5 Fastening methods

6.1.5.1 Continuous visible fastening system

The following fastening techniques have been recognised:

- fixed distance supports, where the panel is attached to a wooden or aluminium framework;
- adjustable distance supports, where the panel is attached to a wooden or aluminium support structure by adjustable aluminium distance supports.

The fastening is as follows:

- in the case of wooden supports, with Plastica Torx screws with coloured head 4.8 x 38, and 4.8 x 25 mm (figure 6, § 6.1.6);
- in the case of aluminium supports, with M5 x 20 mm / 55 mm bolts or blind rivets (figure 7, § 6.1.6).

6.1.5.2 Blind fastening system

Suspension system

Panels thicker than 8 mm are suitable for blind fastening; stainless steel or brass inserts are applied on the back of the panels.

Various fastening and suspension systems are available, comprising fasteners, suspension hooks, adjustable distance supports and wall hooks.

Weatherboarding

Massief NT external wall cladding

6 mm thick panels can be fastened using assembly clamps (figure 8, § 6.1.6). Panels are prepared with a groove on the underside and are assembled overlapping from the bottom up.

6.1.6 Fastening materials

General

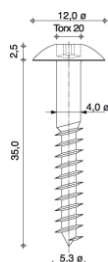
Adequate information about the material properties of the fasteners used must be available; in particular the permissible tensions, the accompanying distortion, the behaviour over time and the behaviour under certain physical and chemical conditions. In all cases the fasteners must be resistant to corrosion (stainless steel for example).

Fastening materials for Massief NT

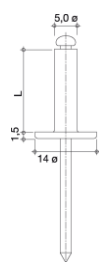
Massief NT must be fastened using the following materials:

- Plastica torx screw with coloured head in the colour of the Massief NT panels.
- Blind rivet with coloured head in the colour of the Massief NT panels.
- Weatherboard clamp.

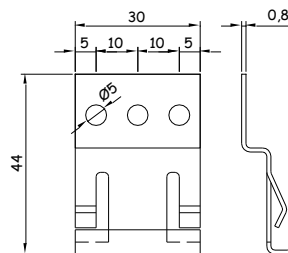
Fastening materials



6. Plastica torx screw



7. Blind rivet



8. Weatherboard clamp

6.1.7 Accessoires

Aluminium, PVC or EPDM rubber profiles for sealing the joints between the Massief NT panels.

7. MAINTENANCE INSTRUCTIONS

Massief NT requires little maintenance. Cleaning with warm water and a soft cloth, sponge or brush is often sufficient. Cleaning agents can be used for light and heavy contamination.

Light contamination

Use a household cleaning agent without abrasive components such as dishwashing liquid, glass cleaner or green soap (1:3 solution in water). Allow to work depending on the degree of contamination. For very stubborn limescale, acidic cleaning agents (e.g. 10% acetic acid or citric acid) can also be used. In all cases, rinse the facade panels with clean water. Dry the surface with a moisture-absorbing (paper) cloth.

Heavy contamination

Bioveral is specifically designed for heavy contamination. This is a biological cleaning agent. Bioveral is 100% biodegradable and carbon neutral. This product does not contain any ozone-depleting chemicals or ingredients. During the manufacturing process, careful consideration was given to environmentally friendly ingredients that do not contribute to global warming. Bioveral can be used for many applications including the removal of paint, graffiti, vinyl, many types of oils, greases and glue.

8. TIPS FOR THE USER

Check on delivery of the products listed under the "technical specification" whether:

- The product(s) and material(s) ordered are delivered in accordance with the agreement you made.
- The brand and the method of marking is correct
- No defects or damage is visible (for example, resulting from the transportation).

In the context of this product certificate with attestation, no checks take place on the accuracy of the performance of the essential characteristics.

The statements in this product certificate with attestation may not be used to replace the CE marking and/or the corresponding mandatory Declaration of Performance.

If on the basis of the foregoing you decide to proceed to rejection, please contact:

- Plastica Plaat B.V.
- And if necessary,
- Kiwa Nederland B.V.

Carry out the storage, transport and processing in accordance with the provisions included in this product certificate with attestation and/or documents of the certificate holder.

Massief NT external wall cladding

Follow the application conditions and processing instructions included in this product certificate with attestation and belonging attestation and/or documents of the certificate holder.

Check whether this product certificate with attestation is still valid, consult the website www.kiwa.nl.

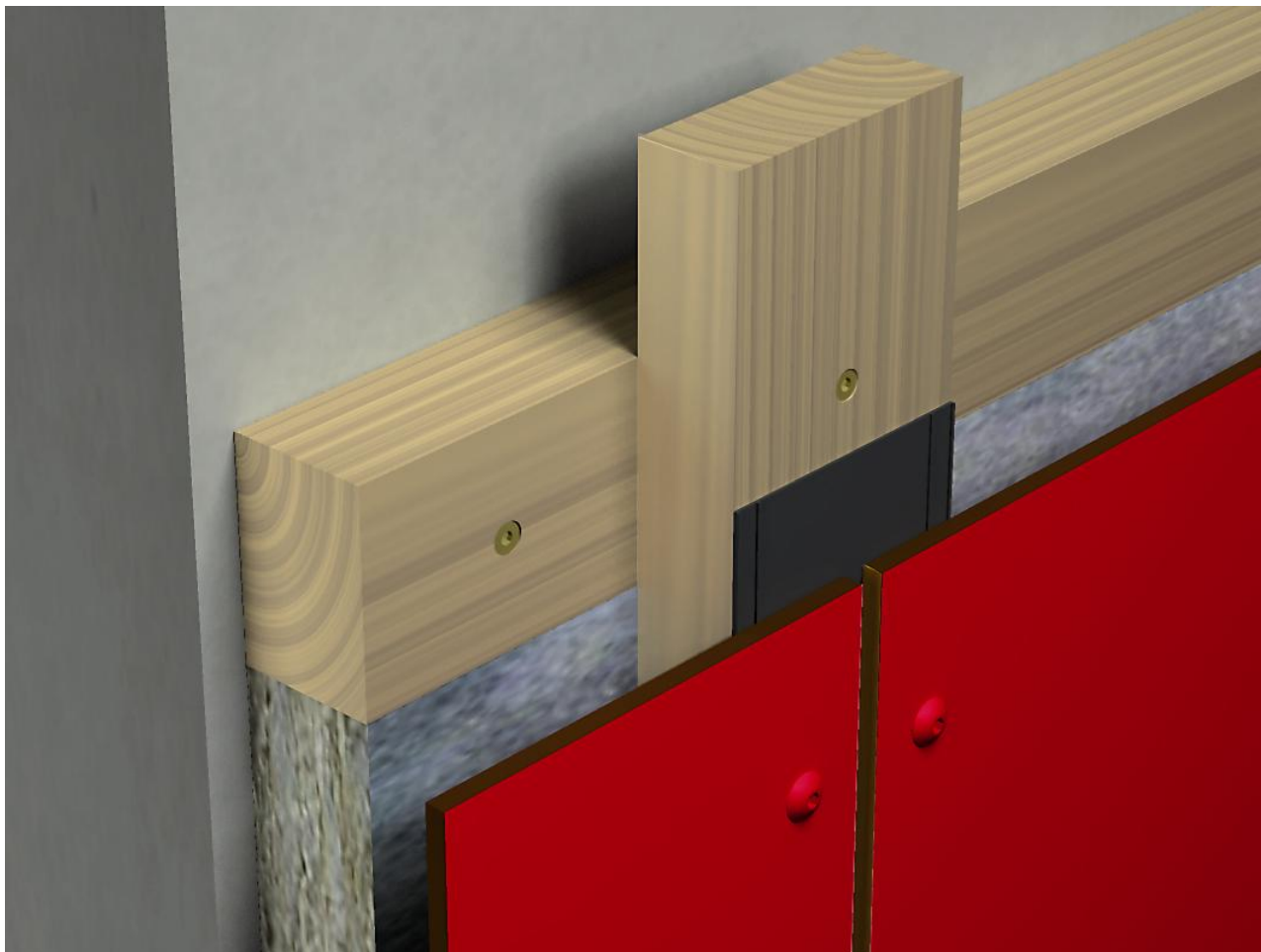
9. DOCUMENT LIST

Structures (living environment) decree:2018 Stbl. 2018, 291, laatst gewijzigd stbl, 2022, 360.

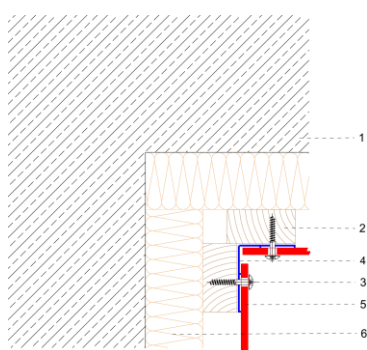
NEN 1068	Thermische isolatie van gebouwen – Rekenmethoden
NEN 2778	Vochttering in gebouwen – Bepalingsmethoden
NEN 5461	Kwaliteitseisen voor hout (KVH 2000) - Gezaagd hout en rondhout - Algemeen gedeelte
NEN 5466	Kwaliteitseisen voor hout (KVH 2010) - Op uiterlijke kenmerken gesorteerd Europees naaldhout
NEN 6762	Stalen stiftvormige verbindingsmiddelen voor dragende houtconstructies
NEN 6065	Bepaling van de bijdrage tot brandvoortplanting van bouw materiaal (combinaties)
NEN 6066	Bepaling van de rookproductie bij brand van bouw materiaal (combinaties)
NEN 8700	Beoordeling van de constructieve veiligheid van een bestaand bouwwerk bij verbouw en afkeuren - Grondslagen
NEN-EN 338	Hout voor constructieve toepassingen - Sterkteklassen
NEN-EN 350-1	Duurzaamheid van hout en op hout gebaseerde producten - Natuurlijke duurzaamheid van massief hout - Deel 1: Richtlijn voor de principes van het beproeven en het classificeren van de natuurlijke duurzaamheid van hout
EN 438-2	Decoratieve hoge-druk gelamineerde plaat (HPL) - Platen gebaseerd op thermohardende harsen (vaak laminaat genoemd) - Deel 2: Bepaling van de eigenschappen
EN 438-7	Decoratief hoge-druk laminaat (HPL) - Platen gebaseerd op thermohardende harsen (gewoonlijk Laminaat genoemd) - Deel 7: Compact laminaat en samengestelde panelen van HPL voor wand- en plafondafwerking binnen en buiten
EN 1990	Eurocode – Grondslagen van het constructief ontwerp, inclusief nationale bijlage
EN 1991-1-1	Eurocode 1: Belastingen op constructies – Deel 1-1: Algemene belastingen – Volumieke gewichten, eigengewicht en opgelegde belastingen voor gebouwen, inclusief nationale bijlage
EN 1991-1-4	Eurocode 1: Belastingen op constructies – Deel 1-4: Algemene belastingen – Windbelasting, inclusief nationale bijlage
EN 1991-1-5	Eurocode 1: Belastingen op constructies – Deel 1-5: Algemene belastingen – Thermische belasting, inclusief nationale bijlage
NEN-EN 1991-1-7	Eurocode 1: Belastingen op constructies – Deel 1-7: Algemene belastingen – Buitengewone belastingen: stootbelastingen en ontploffingen, inclusief nationale bijlage
NEN-EN 1993-1-1	Eurocode 3: Ontwerp en berekening van staalconstructies - Deel 1-10: Materiaalbaarheid en eigenschappen in de dikterichting, inclusief nationale bijlage
NEN-EN 1995-1-1	Eurocode 5: Ontwerp en berekening van houtconstructies - Deel 1-1: Algemeen - Gemeenschappelijke regels en regels voor gebouwen, inclusief nationale bijlage
NEN-EN 1999-1-1	Eurocode 9: Ontwerp en berekening van aluminiumconstructies - Deel 1-1: Algemene regels, inclusief nationale bijlage
NEN-EN 13501-1	Brandclassificatie van bouwproducten en bouw delen – Deel 1: Classificatie op grond van resultaten van beproeving van het brandgedrag
EN 14592	Houtconstructies - Stiftvormige verbindingsmiddelen - Eisen
NEN-ISO 105-A02	Textiel - Beproeving van de kleurechtheid - Deel A02:Grijsschaal voor de bepaling van de kleurverandering
NEN-EN-ISO 178	Kunststoffen - Bepaling van de buigeigenschappen
NEN-EN-ISO 1183-1	Kunststoffen - Methoden voor het bepalen van de dichtheid van niet-geschuimde kunststoffen - Deel 1: Dompelmethode, vloeistof pyknometermethode en titratiemethode
DIN 50018	Prüfung im Kondenswasser-Wechselklima mit schwefeldioxidhaltiger Atmosphäre
NPR 2652	Vochttering in gebouwen - Wering van vocht van buiten en wering van vocht van binnen - Voorbeelden van bouwkundige details
NPR 2878	Uitwendige scheidingsconstructies van gebouwen - Vereenvoudigde berekeningsmethode voor de binnenoppervlaktetemperatuurfactor

Massief NT external wall cladding

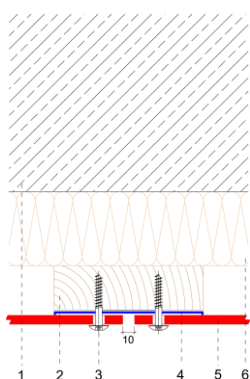
10. BASIC DETAILS 10.1 FASTENING WITH SCREWS



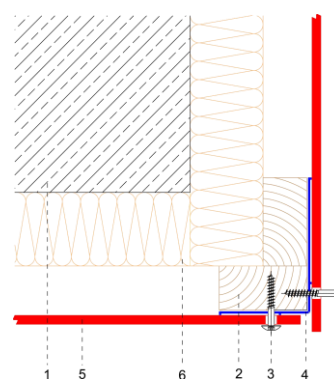
Fastening with screws



Horizontal cross-section
internal corner joint, screwed



Horizontal cross-section
connecting batten, screwed



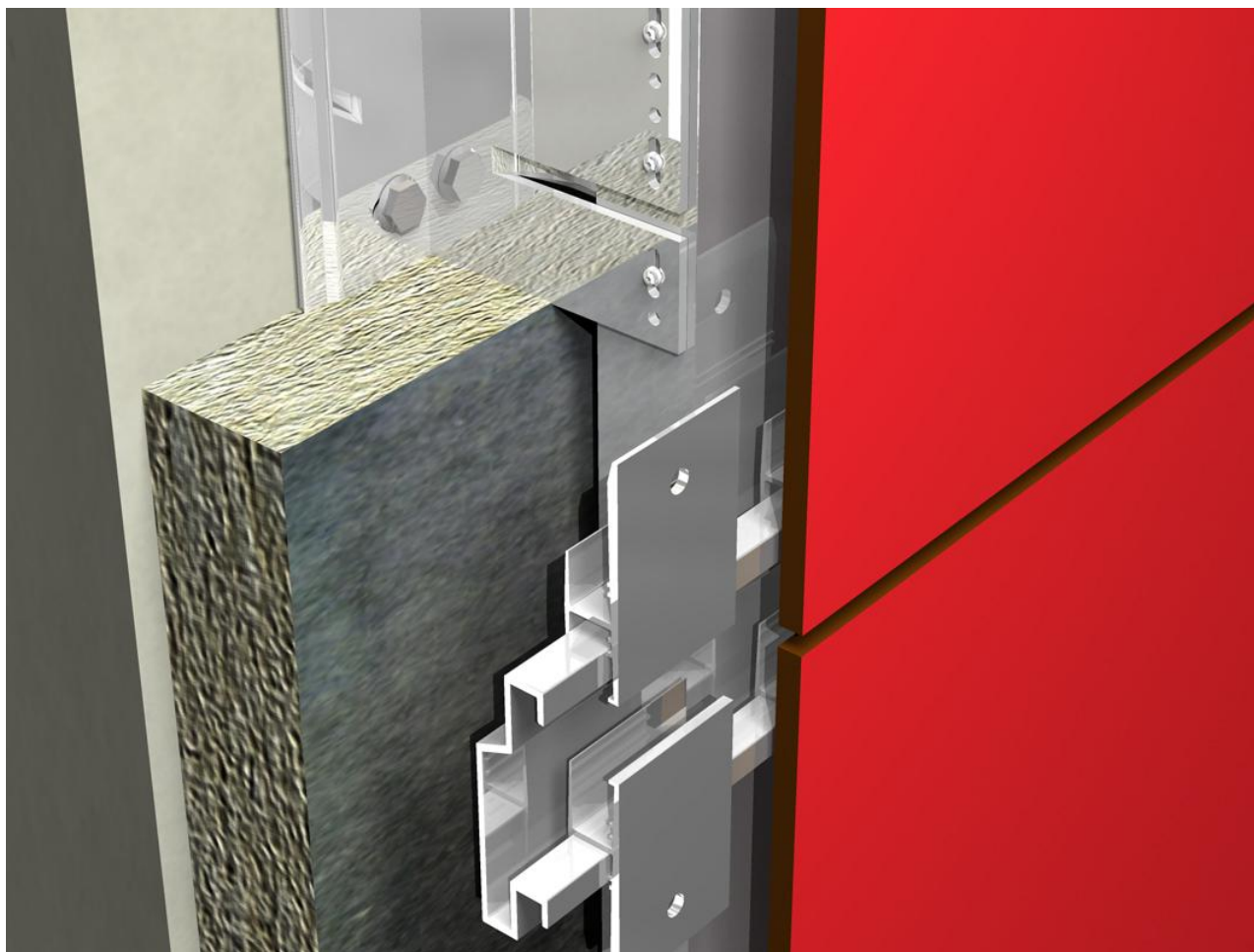
Horizontal cross-section
external corner joint, screwed

1. External wall structure behind
2. Wooden batten
3. Plastica Torx screw 6.

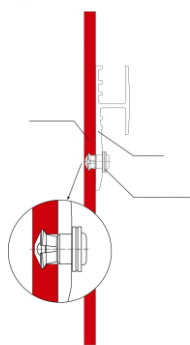
4. Joint tape
5. Plastica Massief NT
6. Insulation material

Massief NT external wall cladding

10.2 BLIND FASTENING

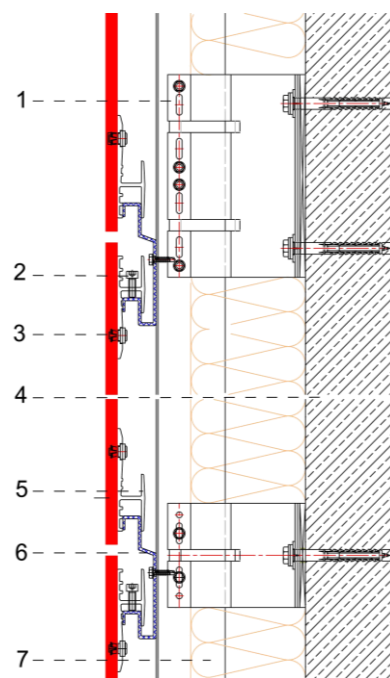


Blind fastening



Blind suspension system,
collar plug detail

1. Plastica blind suspension system, wall support
2. Adjusting screw
3. Collar plug
4. External wall structure behind
5. Plastica blind suspension system, adjustable wall hook
6. Plastica blind suspension system, horizontal bearing profile
7. Insulation material



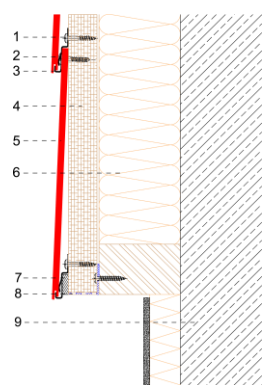
Blind suspension system, vertical cross-section

Massief NT external wall cladding

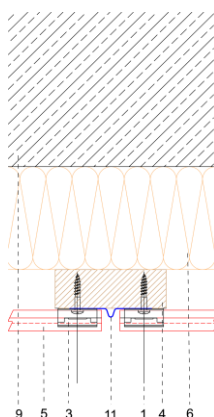
10.3 WEATHERBOARDING



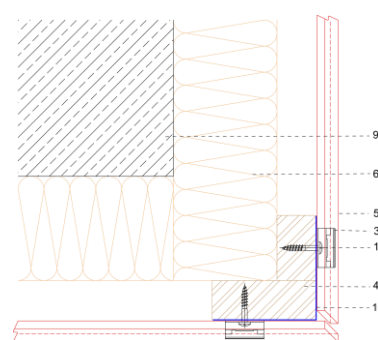
Weatherboarding



Weatherboarding inclusive start profile



Horizontal cross-section connecting batten, screwed



Horizontal cross-section external corner joint, screwed

1. Plastica Torx screw 5.
2. Plastica weatherboard panel 6.
3. Plastica assembly clamp 7.
4. Wooden batten

5. Plastica weatherboard panel 9.
6. Insulation material
7. Plastica Massief NT 11.
8. Plastica assembly clamp

9. Facade structure behind
10. EPDM foil
11. Joint profile